



34506104.ST25.txt  
SEQUENCE LISTING

<110> Niles, Andrew  
Maffitt, Mark  
Haak-Frendscho, Mary

<120> RECOMBINANT PROTEOLYTIC TRYPTASES, ACTIVE SITE MUTANTS THEREOF, AND METHODS OF MAKING SAME

<130> 34506.104

<140> 09/598,982

<141> 2000-06-21

<150> 09/079,970

<151> 1998-04-15

<160> 52

<170> PatentIn version 3.1

<210> 1

<211> 735

<212> DNA

<213> Homo sapiens

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<221> CDS

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agc ctg aga gtc cac ggc cca tac tgg atg cac ttc tgc ggg ggc tcc 96  
Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
20 25 30

ctc atc cac ccc cag tgg gtg ctg acc gca gcg cac tgc gtg gga ccg 144  
Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro  
35 40 45

gac gtc aag gat ctg gcc gcc ctc agg gtg caa ctg cgg gag cag cac 192  
Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His  
50 55 60

ctc tac tac cag gac cag ctg ctg ccg gtc agc agg atc atc gtg cac 240  
Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
65 70 75 80

cca cag ttc tac acc gcc cag atc gga gcg gac atc gcc ctg ctg gag 288  
Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu  
85 90 95

ctg gag gag ccg gtg aac gtc tcc agc cac gtc cac acg gtc acc ctg 336  
Leu Glu Glu Pro Val Asn Val Ser Ser His Val His Thr Val Thr Leu

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ccc cct gcc tca gag acc ttc ccc ccg ggg atg ccg tgc tgg gtc act 384  
 Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr  
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ggc tgg ggc gat gtg gac aat gat gag cgc ctc cca ccg cca ttt cct 432  
 Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Phe Pro  
 130 135 140

ctg aag cag gtg aag gtc ccc ata atg gaa aac cac att tgt gac gca 480  
 Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala  
 145 150 155 160

aaa tac cac ctt ggc gcc tac acg gga gac gac gtc cgc atc gtc cgt 528  
 Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg  
 165 170 175

gac gac atg ctg tgt gcc ggg aac acc ccg agg gac tca tgc cag ggc 576  
 Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly  
 180 185 190

gac tcc gga ggg ccc ctg gtg tgc aag gtg aat ggc acc tgg ctg cag 624  
 Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln  
 195 200 205

gcg ggc gtg gtc agc tgg ggc gag ggc tgt gcc cag ccc aac cgg cct 672  
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 210 215 220

ggc atc tac acc cgt gtc acc tac tac ttg gac tgg atc cac cac tat 720  
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 Val Pro Lys Lys Pro  
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 20 25 30

Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro  
 35 40 45

Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His

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Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
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Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu  
 85 90 95

Leu Glu Glu Pro Val Asn Val Ser Ser His Val His Thr Val Thr Leu  
 100 105 110

Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr  
 115 120 125

Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro  
 130 135 140

Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala  
 145 150 155 160

Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg  
 165 170 175

Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly  
 180 185 190

Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln  
 195 200 205

Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro  
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Val Pro Lys Lys Pro  
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Lys Trp Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met  
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cac ttc tgc ggg ggc tcc ctc atc cac ccc cag tgg gtg ctg acc gca 144  
His Phe Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala  
35 40 45

gcg cac tgc gtg gga ccg gac gtc aag gat ctg gcc gcc ctc agg gtg 192  
Ala His Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val  
50 55 60

caa ctg cgg gag cag cac ctc tac tac cag gac cag ctg ctg ccg gtc 240  
Gln Leu Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val  
65 70 75

agc agg atc atc gtg cac cca cag ttc tac acc gcc cag atc gga gcg 288  
Ser Arg Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala  
80 85 90

gac atc gcc ctg ctg gag ctg gag gag ccg gtg aac gtc tcc agc cac 336  
Asp Ile Ala Leu Leu Glu Leu Glu Glu Pro Val Asn Val Ser Ser His  
95 100 105 110

gtc cac acg gtc acc ctg ccc cct gcc tca gag acc ttc ccc ccg ggg 384  
Val His Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly  
115 120 125

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atg ccg tgc tgg gtc act ggc tgg ggc gat gtg gac aat gat gag cgc	432
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130 135 140	
ctc cca ccg cca ttt cct ctg aag cag gtg aag gtc ccc ata atg gaa	480
Leu Pro Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu	
145 150 155	
aac cac att tgt gac gca aaa tac cac ctt ggc gcc tac acg gga gac	528
Asn His Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp	
160 165 170	
gac gtc cgc atc gtc cgt gac gac atg ctg tgt gcc ggg aac acc cgg	576
Asp Val Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg	
175 180 185 190	
agg gac tca tgc cag ggc gac tcc gga ggg ccc ctg gtg tgc aag gtg	624
Arg Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Lys Val	
195 200 205	
aat ggc acc tgg ctg cag gcg ggc gtg gtc agc tgg ggc gag ggc tgt	672
Asn Gly Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys	
210 215 220	
gcc cag ccc aac cgg cct ggc atc tac acc cgt gtc acc tac tac ttg	720
Ala Gln Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu	
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gac tgg atc cac cac tat gtc ccc aaa aag ccg tgaagcggcc gccgtcgt	771
Asp Trp Ile His His Tyr Val Pro Lys Lys Pro	
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Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His	
35 40 45	
Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu	
50 55 60	
Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg	
65 70 75 80	

Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile  
85 90 95

Ala Leu Leu Glu Leu Glu Glu Pro Val Asn Val Ser Ser His Val His  
100 105 110

Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro  
115 120 125

Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro  
130 135 140

Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His  
145 150 155 160

Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val  
165 170 175

Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp  
180 185 190

Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly  
195 200 205

Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln  
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Ile His His Tyr Val Pro Lys Lys Pro  
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<212> DNA

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 Lys Trp Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met  
 15 20 25 30

cac ttc tgc ggg ggc tcc ctc atc cac ccc cag tgg gtg ctg acc gca 144  
 His Phe Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala  
 35 40 45

gcg cac tgc gtg gga ccg gac gtc aag gat ctg gcc gcc ctc agg gtg 192  
 Ala His Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val  
 50 55 60

caa ctg cgg gag cag cac ctc tac tac cag gac cag ctg ctg ccg gtc 240  
 Gln Leu Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val  
 65 70 75

agc agg atc atc gtg cac cca cag ttc tac acc gcc cag atc gga gcg 288  
 Ser Arg Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala  
 80 85 90

gac atc gcc ctg ctg gag ctg gag gag ccg gtg aag gtc tcc agc cac 336  
 Asp Ile Ala Leu Leu Glu Leu Glu Glu Pro Val Lys Val Ser Ser His  
 95 100 105 110

gtc cac acg gtc acc ctg ccc cct gcc tca gag acc ttc ccc ccg ggg 384  
 Val His Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly  
 115 120 125

atg ccg tgc tgg gtc act ggc tgg ggc gat gtg gac aat gat gag cgc 432  
 Met Pro Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg  
 130 135 140

ctc cca ccg cca ttt cct ctg aag cag gtg aag gtc ccc ata atg gaa 480  
 Leu Pro Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu  
 145 150 155

aac cac att tgt gac gca aaa tac cac ctt ggc gcc tac acg gga gac 528  
 Asn His Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp  
 160 165 170

gac gtc cgc atc gtc cgt gac gac atg ctg tgt gcc ggg aac acc cgg 576  
 Asp Val Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg  
 175 180 185 190

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agg gac tca tgc cag ggc gac tcc gga ggg ccc ctg gtg tgc aag gtg 624  
 Arg Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Lys Val  
 195 200 205

aat ggc acc tgg ctg cag gcg ggc gtg gtc agc tgg ggc gag ggc tgt 672  
 Asn Gly Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys  
 210 215 220

gcc cag ccc aac cgg cct ggc atc tac acc cgt gtc acc tac tac ttg 720  
 Ala Gln Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu  
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gac tgg atc cac cac tat gtc ccc aaa aag ccg tgaagcggcc gccgtcgt 771  
 Asp Trp Ile His His Tyr Val Pro Lys Lys Pro  
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Leu Glu Lys Arg Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp  
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Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe  
 20 25 30

Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His  
 35 40 45

Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu  
 50 55 60

Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg  
 65 70 75 80

Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile  
 85 90 95

Ala Leu Leu Glu Leu Glu Glu Pro Val Lys Val Ser Ser His Val His  
 100 105 110

Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro  
 115 120 125

Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro  
 130 135 140



Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His  
145 150 155 160

Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val  
165 170 175

Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp  
180 185 190

Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly  
195 200 205

Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln  
210 215 220

Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp  
225 230 235 240

Ile His His Tyr Val Pro Lys Lys Pro  
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1 5 10 15  
agc ctg aga gtc cac ggc cca tac tgg atg cac ttc tgc ggg ggc tcc 96  
Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
20 25 30  
ctc atc cac ccc cag tgg gtg ctg acc gca gcg cac tgc gtg gga ccg 144  
Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro  
35 40 45  
gac gtc aag gat ctg gcc gcc ctc agg gtg caa ctg cgg gag cag cac 192  
Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His  
50 55 60  
ctc tac tac cag gac cag ctg ctg ccg gtc agc agg atc atc gtg cac 240  
Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His

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Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu	85	90	95	
ctg gag gag ccg gtg aag gtc tcc agc cac gtc cac acg gtc acc ctg				336
Leu Glu Glu Pro Val Lys Val Ser Ser His Val His Thr Val Thr Leu	100	105	110	
ccc cct gcc tca gag acc ttc ccc ccg ggg atg ccg tgc tgg gtc act				384
Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr	115	120	125	
ggc tgg ggc gat gtg gac aat gat gag cgc ctc cca ccg cca ttt cct				432
Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro	130	135	140	
ctg aag cag gtg aag gtc ccc ata atg gaa aac cac att tgt gac gca				480
Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala	145	150	155	160
aaa tac cac ctt ggc gcc tac acg gga gac gac gtc cgc atc gtc cgt				528
Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg	165	170	175	
gac gac atg ctg tgt gcc ggg aac acc cgg agg gac tca tgc cag ggc				576
Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly	180	185	190	
gac tcc gga ggg ccc ctg gtg tgc aag gtg aat ggc acc tgg ctg cag				624
Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln	195	200	205	
gcg ggc gtg gtc agc tgg ggc gag ggc tgt gcc cag ccc aac cgg cct				672
Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro	210	215	220	
ggc atc tac acc cgt gtc acc tac tac ttg gac tgg atc cac cac tat				720
Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr	225	230	235	240
gtc ccc aaa aag ccg				735
Val Pro Lys Lys Pro	245			

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25

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 Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
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 Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu  
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 Leu Glu Glu Pro Val Lys Val Ser Ser His Val His Thr Val Thr Leu  
 100 105 110  
 Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr  
 115 120 125  
 Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro  
 130 135 140  
 Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala  
 145 150 155 160  
 Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg  
 165 170 175  
 Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly  
 180 185 190  
 Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln  
 195 200 205  
 Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro  
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 Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr  
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 Val Pro Lys Lys Pro  
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<210> 20  
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aag tgg ccc tgg cag gtg agc ctg aga gtc cac ggc cca tac tgg atg 96  
 Lys Trp Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met  
 15 20 25 30

cac ttc tgc ggg ggc tcc ctc atc cac ccc cag tgg gtg ctg acc gcc 144  
 His Phe Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala

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caa	ctg	cgg	gag	cag	cac	ctc	tac	tac	cag	gac	cag	ctg	ctg	ccg	gtc	240				
Gln	Leu	Arg	Glu	Gln	His	Leu	Tyr	Tyr	Gln	Asp	Gln	Leu	Leu	Pro	Val					
			65				70						75							
agc	agg	atc	atc	gtg	cac	cca	cag	ttc	tac	acc	gcc	cag	atc	gga	gcg	288				
Ser	Arg	Ile	Ile	Val	His	Pro	Gln	Phe	Tyr	Thr	Ala	Gln	Ile	Gly	Ala					
			80				85						90							
gac	atc	gcc	ctg	ctg	gag	ctg	gag	gag	ccg	gtg	aag	gtc	tcc	agc	cac	336				
Asp	Ile	Ala	Leu	Leu	Glu	Leu	Glu	Glu	Pro	Val	Lys	Val	Ser	Ser	His					
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gtc	cac	acg	gtc	acc	ctg	ccc	cct	gcc	tca	gag	acc	ttc	ccc	ccg	ggg	384				
Val	His	Thr	Val	Thr	Leu	Pro	Pro	Ala	Ser	Glu	Thr	Phe	Pro	Pro	Gly					
			115						120			125								
atg	ccg	tgc	tgg	gtc	act	ggc	tgg	ggc	gat	gtg	gac	aat	gat	gag	cgc	432				
Met	Pro	Cys	Trp	Val	Thr	Gly	Trp	Gly	Asp	Val	Asp	Asn	Asp	Glu	Arg					
			130			135						140								
ctc	cca	ccg	cca	ttt	cct	ctg	aag	cag	gtg	aag	gtc	ccc	ata	atg	gaa	480				
Leu	Pro	Pro	Pro	Phe	Pro	Leu	Lys	Gln	Val	Lys	Val	Pro	Ile	Met	Glu					
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aac	cac	att	tgt	gac	gca	aaa	tac	cac	ctt	ggc	gcc	tac	acg	gga	gac	528				
Asn	His	Ile	Cys	Asp	Ala	Lys	Tyr	His	Leu	Gly	Ala	Tyr	Thr	Gly	Asp					
			160			165						170								
gac	gtc	cgc	atc	gtc	cgt	gac	gac	atg	ctg	tgt	gcc	ggg	aac	acc	cgg	576				
Asp	Val	Arg	Ile	Val	Arg	Asp	Asp	Met	Leu	Cys	Ala	Gly	Asn	Thr	Arg					
			175			180			185			190								
agg	gac	tca	tgc	cag	ggc	gac	tcc	gga	ggg	ccc	ctg	gtg	tgc	aag	gtg	624				
Arg	Asp	Ser	Cys	Gln	Gly	Asp	Ser	Gly	Gly	Pro	Leu	Val	Cys	Lys	Val					
			195						200			205								
aat	ggc	acc	tgg	ctg	cag	gcg	ggc	gtg	gtc	agc	tgg	ggc	gag	ggc	tgt	672				
Asn	Gly	Thr	Trp	Leu	Gln	Ala	Gly	Val	Val	Ser	Trp	Gly	Glu	Gly	Cys					
			210			215						220								
gcc	cag	ccc	aac	cgg	cct	ggc	atc	tac	acc	cgt	gtc	acc	tac	tac	ttg	720				
Ala	Gln	Pro	Asn	Arg	Pro	Gly	Ile	Tyr	Thr	Arg	Val	Thr	Tyr	Tyr	Leu					
			225			230						235								
gac	tgg	atc	cac	cac	tat	gtc	ccc	aaa	aag	ccg	tgaagcggcc	gccgtcgt				771				
Asp	Trp	Ile	His	His	Tyr	Val	Pro	Lys	Lys	Pro										
			240			245														

<210> 21  
 <211> 249  
 <212> PRT  
 <213> Homo sapiens

&lt;400&gt; 21

Leu Glu Lys Arg Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp  
 1 5 10 15

Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe  
 20 25 30

Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala Ala  
 35 40 45

Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu  
 50 55 60

Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg  
 65 70 75 80

Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile  
 85 90 95

Ala Leu Leu Glu Leu Glu Glu Pro Val Lys Val Ser Ser His Val His  
 100 105 110

Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro  
 115 120 125

Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro  
 130 135 140

Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His  
 145 150 155 160

Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val  
 165 170 175

Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp  
 180 185 190

Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly  
 195 200 205

Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln  
 210 215 220

Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp  
 225 230 235 240

Ile His His Tyr Val Pro Lys Lys Pro  
 245

<210> 22  
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 Leu Glu Lys Arg Ile Val Gly Gly Gln Glu Ala Pro Arg Ser  
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aag tgg ccc tgg cag gtg agc ctg aga gtc cac ggc cca tac tgg atg 96  
 Lys Trp Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met  
 15 20 25 30

cac ttc tgc ggg ggc tcc ctc atc cac ccc cag tgg gtg ctg acc gca 144  
 His Phe Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala  
 35 40 45

gcg cac tgc gtg gga ccg gac gtc aag gat ctg gcc gcc ctc agg gtg 192  
 Ala His Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val  
 50 55 60

caa ctg cgg gag cag cac ctc tac tac cag gac cag ctg ctg ccg gtc 240  
 Gln Leu Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val  
 65 70 75

agc agg atc atc gtg cac cca cag ttc tac acc gcc cag atc gga gcg 288  
 Ser Arg Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala  
 80 85 90

gca atc gcc ctg ctg gag ctg gag gag ccg gtg aag gtc tcc agc cac 336  
 Ala Ile Ala Leu Leu Glu Leu Glu Glu Pro Val Lys Val Ser Ser His  
 95 100 105 110

gtc cac acg gtc acc ctg ccc cct gcc tca gag acc ttc ccc ccg ggg 384  
 Val His Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly  
 115 120 125

atg ccg tgc tgg gtc act ggc tgg ggc gat gtg gac aat gat gag cgc 432  
 Met Pro Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg  
 130 135 140

ctc cca ccg cca ttt cct ctg aag cag gtg aag gtc ccc ata atg gaa 480  
 Leu Pro Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu  
 145 150 155



aac cac att tgt gac gca aaa tac cac ctt ggc gcc tac acg gga gac 528  
 Asn His Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp  
 160 165 170

gac gtc cgc atc gtc cgt gac gac atg ctg tgt gcc ggg aac acc cgg 576  
 Asp Val Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg  
 175 180 185 190

agg gac tca tgc cag ggc gac tcc gga ggg ccc ctg gtg tgc aag gtg 624  
 Arg Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Lys Val  
 195 200 205

aat ggc acc tgg ctg cag gcg ggc gtg gtc agc tgg ggc gag ggc tgt 672  
 Asn Gly Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys  
 210 215 220

gcc cag ccc aac cgg cct ggc atc tac acc cgt gtc acc tac tac ttg 720  
 Ala Gln Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu  
 225 230 235

gac tgg atc cac cac tat gtc ccc aaa aag ccg tgaagcggcc gccgtcgt 771  
 Asp Trp Ile His His Tyr Val Pro Lys Lys Pro  
 240 245

<210> 23

<211> 249

<212> PRT

<213> Homo sapiens

<400> 23

Leu Glu Lys Arg Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp  
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Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe  
 20 25 30

Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His  
 35 40 45

Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu  
 50 55 60

Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg  
 65 70 75 80

Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Ala Ile  
 85 90 95

Ala Leu Leu Glu Leu Glu Glu Pro Val Lys Val Ser Ser His Val His  
 100 105 110

Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro  
 115 120 125

Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro  
 130 135 140

Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His  
 145 150 155 160

Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val  
 165 170 175

Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp  
 180 185 190

Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly  
 195 200 205

Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln  
 210 215 220

Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp  
 225 230 235 240

Ile His His Tyr Val Pro Lys Lys Pro  
 245

<210> 24  
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 Leu Glu Lys Arg Ile Val Gly Gly Gln Ala Pro Arg Ser  
 1 5 10

aag tgg ccc tgg cag gtg agc ctg aga gtc cac ggc cca tac tgg atg 96  
 Lys Trp Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met  
 15 20 25 30

cac ttc tgc ggg ggc tcc ctc atc cac ccc cag tgg gtg ctg acc gca 144

## 34506104.ST25.txt

His	Phe	Cys	Gly	Gly	Ser	Leu	Ile	His	Pro	Gln	Trp	Val	Leu	Thr	Ala	
				35					40					45		
gcg	cac	tgc	gtg	gga	ccg	gac	gtc	aag	gat	ctg	gcc	gcc	ctc	agg	gtg	192
Ala	His	Cys	Val	Gly	Pro	Asp	Val	Lys	Asp	Leu	Ala	Ala	Leu	Arg	Val	
			50					55					60			
caa	ctg	cgg	gag	cag	cac	ctc	tac	tac	cag	gac	cag	ctg	ctg	ccg	gtc	240
Gln	Leu	Arg	Glu	Gln	His	Leu	Tyr	Tyr	Gln	Asp	Gln	Leu	Leu	Pro	Val	
		65					70					75				
agc	agg	atc	atc	gtg	cac	cca	cag	ttc	tac	acc	gcc	cag	atc	gga	gcg	288
Ser	Arg	Ile	Ile	Val	His	Pro	Gln	Phe	Tyr	Thr	Ala	Gln	Ile	Gly	Ala	
	80					85					90					
gac	atc	gcc	ctg	ctg	gag	ctg	gag	gag	ccg	gtg	aag	gtc	tcc	agc	cac	336
Asp	Ile	Ala	Leu	Leu	Glu	Leu	Glu	Glu	Pro	Val	Lys	Val	Ser	Ser	His	
	95				100					105					110	
gtc	cac	acg	gtc	acc	ctg	ccc	cct	gcc	tca	gag	acc	ttc	ccc	ccg	ggg	384
Val	His	Thr	Val	Thr	Leu	Pro	Pro	Ala	Ser	Glu	Thr	Phe	Pro	Pro	Gly	
				115					120					125		
atg	ccg	tgc	tgg	gtc	act	ggc	tgg	ggc	gat	gtg	gac	aat	gat	gag	cgc	432
Met	Pro	Cys	Trp	Val	Thr	Gly	Trp	Gly	Asp	Val	Asp	Asn	Asp	Glu	Arg	
			130					135					140			
ctc	cca	ccg	cca	ttt	cct	ctg	aag	cag	gtg	aag	gtc	ccc	ata	atg	gaa	480
Leu	Pro	Pro	Pro	Phe	Pro	Leu	Lys	Gln	Val	Lys	Val	Pro	Ile	Met	Glu	
		145					150					155				
aac	cac	att	tgt	gac	gca	aaa	tac	cac	ctt	ggc	gcc	tac	acg	gga	gac	528
Asn	His	Ile	Cys	Asp	Ala	Lys	Tyr	His	Leu	Gly	Ala	Tyr	Thr	Gly	Asp	
	160					165					170					
gac	gtc	cgc	atc	gtc	cgt	gac	gac	atg	ctg	tgt	gcc	ggg	aac	acc	cgg	576
Asp	Val	Arg	Ile	Val	Arg	Asp	Asp	Met	Leu	Cys	Ala	Gly	Asn	Thr	Arg	
	175				180					185					190	
agg	gac	tca	tgt	caa	ggc	gac	gcc	ggc	gga	cct	ctg	gtg	tgc	aag	gtg	624
Arg	Asp	Ser	Cys	Gln	Gly	Asp	Ala	Gly	Gly	Pro	Leu	Val	Cys	Lys	Val	
				195					200					205		
aat	ggc	acc	tgg	ctg	cag	gcg	ggc	gtg	gtc	agc	tgg	ggc	gag	ggc	tgt	672
Asn	Gly	Thr	Trp	Leu	Gln	Ala	Gly	Val	Val	Ser	Trp	Gly	Glu	Gly	Cys	
			210					215					220			
gcc	cag	ccc	aac	cgg	cct	ggc	atc	tac	acc	cgt	gtc	acc	tac	tac	ttg	720
Ala	Gln	Pro	Asn	Arg	Pro	Gly	Ile	Tyr	Thr	Arg	Val	Thr	Tyr	Tyr	Leu	
		225					230					235				
gac	tgg	atc	cac	cac	tat	gtc	ccc	aaa	aag	ccg	tga	agc	ggc	gcc	gtc	771
Asp	Trp	Ile	His	His	Tyr	Val	Pro	Lys	Lys	Pro						
	240					245										

<210> 25  
 <211> 249  
 <212> PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 25

Leu Glu Lys Arg Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp  
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Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe  
 20 25 30

Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His  
 35 40 45

Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu  
 50 55 60

Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg  
 65 70 75 80

Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile  
 85 90 95

Ala Leu Leu Glu Leu Glu Glu Pro Val Lys Val Ser Ser His Val His  
 100 105 110

Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro  
 115 120 125

Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro  
 130 135 140

Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His  
 145 150 155 160

Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val  
 165 170 175

Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp  
 180 185 190

Ser Cys Gln Gly Asp Ala Gly Gly Pro Leu Val Cys Lys Val Asn Gly  
 195 200 205

Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln  
 210 215 220

Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp  
 225 230 235 240

Ile His His Tyr Val Pro Lys Lys Pro  
 245

<210> 26  
 <211> 771  
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 aag tgg ccc tgg cag gtg agc ctg aga gtc cac ggc cca tac tgg atg 96  
 Lys Trp Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met  
 15 20 25 30  
 cac ttc tgc ggg ggc tcc ctc atc cac ccc cag tgg gtg ctg acc gca 144  
 His Phe Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala  
 35 40 45  
 gcg cac tgc gtg gga ccg gac gtc aag gat ctg gcc gcc ctc agg gtg 192  
 Ala His Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val  
 50 55 60  
 caa ctg cgg gag cag cac ctc tac tac cag gac cag ctg ctg ccg gtc 240  
 Gln Leu Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val  
 65 70 75  
 agc agg atc atc gtg cac cca cag ttc tac acc gcc cag atc gga gcg 288  
 Ser Arg Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala  
 80 85 90  
 gac atc gcc ctg ctg gag ctg gag gag ccg gtg aag gtc tcc agc cac 336  
 Asp Ile Ala Leu Leu Glu Leu Glu Glu Pro Val Lys Val Ser Ser His  
 95 100 105 110  
 gtc cac acg gtc acc ctg ccc cct gcc tca gag acc ttc ccc ccg ggg 384  
 Val His Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly  
 115 120 125  
 atg ccg tgc tgg gtc act ggc tgg ggc gat gtg gac aat gat gag cgc 432  
 Met Pro Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg  
 130 135 140  
 ctc cca ccg cca ttt cct ctg aag cag gtg aag gtc ccc ata atg gaa 480  
 Leu Pro Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu

145

150

155

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aac cac att tgt gac gca aaa tac cac ctt ggc gcc tac acg gga gac      528
Asn His Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp
    160                      165                      170

gac gtc cgc atc gtc cgt gac gac atg ctg tgt gcc ggg aac acc cgg      576
Asp Val Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg
    175                      180                      185                      190

agg gac tca tgc caa gga gac gcc ggc gga cca ctg gtg tgc aag gtg      624
Arg Asp Ser Cys Gln Gly Asp Ala Gly Gly Pro Leu Val Cys Lys Val
                195                      200                      205

aat ggc acc tgg ctg cag gcg ggc gtg gtc agc tgg ggc gag ggc tgt      672
Asn Gly Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys
                210                      215                      220

gcc cag ccc aac cgg cct ggc atc tac acc cgt gtc acc tac tac ttg      720
Ala Gln Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu
                225                      230                      235

gac tgg atc cac cac tat gtc ccc aaa aag ccg tgaagcggcc gccgtcgt      771
Asp Trp Ile His His Tyr Val Pro Lys Lys Pro
    240                      245

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&lt;210&gt; 27

&lt;211&gt; 249

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 27

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Leu Glu Lys Arg Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp
1                      5                      10                      15

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```

Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe
                20                      25                      30

```

```

Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His
    35                      40                      45

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```

Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu
    50                      55                      60

```

```

Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg
65                      70                      75                      80

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```

Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile
                85                      90                      95

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Ala Leu Leu Glu Leu Glu Glu Pro Val Lys Val Ser Ser His Val His

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100

105

110

Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro  
 115 120 125  
 Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro  
 130 135 140  
 Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His  
 145 150 155 160  
 Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val  
 165 170 175  
 Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp  
 180 185 190  
 Ser Cys Gln Gly Asp Ala Gly Gly Pro Leu Val Cys Lys Val Asn Gly  
 195 200 205  
 Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln  
 210 215 220  
 Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp  
 225 230 235 240  
 Ile His His Tyr Val Pro Lys Lys Pro  
 245

<210> 28  
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 <212> DNA  
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<220>  
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 atc gtc ggg ggt cag gag gcc ccc agg agc aag tgg ccc tgg cag gtg 48  
 Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp Pro Trp Gln Val  
 1 5 10 15  
 agc ctg aga gtc cac ggc cca tac tgg atg cac ttc tgc ggg ggc tcc 96  
 Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
 20 25 30

## 34506104.ST25.txt

ctc atc cac ccc cag tgg gtg ctg acc gcc gcg gcg tgc gtg gga ccg Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala Ala Cys Val Gly Pro 35 40 45	144
gac gtc aag gat ctg gcc gcc ctc agg gtg caa ctg cgg gag cag cac Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His 50 55 60	192
ctc tac tac cag gac cag ctg ctg ccg gtc agc agg atc atc gtg cac Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His 65 70 75 80	240
cca cag ttc tac acc gcc cag atc gga gcg gac atc gcc ctg ctg gag Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu 85 90 95	288
ctg gag gag ccg gtg aag gtc tcc agc cac gtc cac acg gtc acc ctg Leu Glu Glu Pro Val Lys Val Ser Ser His Val His Thr Val Thr Leu 100 105 110	336
ccc cct gcc tca gag acc ttc ccc ccg ggg atg ccg tgc tgg gtc act Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr 115 120 125	384
ggc tgg ggc gat gtg gac aat gat gag cgc ctc cca ccg cca ttt cct Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro 130 135 140	432
ctg aag cag gtg aag gtc ccc ata atg gaa aac cac att tgt gac gca Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala 145 150 155 160	480
aaa tac cac ctt ggc gcc tac acg gga gac gac gtc cgc atc gtc cgt Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg 165 170 175	528
gac gac atg ctg tgt gcc ggg aac acc ccg agg gac tca tgc cag ggc Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly 180 185 190	576
gac tcc gga ggg ccc ctg gtg tgc aag gtg aat ggc acc tgg ctg cag Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln 195 200 205	624
gcg ggc gtg gtc agc tgg ggc gag ggc tgt gcc cag ccc aac cgg cct Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro 210 215 220	672
ggc atc tac acc cgt gtc acc tac tac ttg gac tgg atc cac cac tat Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr 225 230 235 240	720
gtc ccc aaa aag ccg Val Pro Lys Lys Pro 245	735

<210> 29  
<211> 245



&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 29

Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp Pro Trp Gln Val  
 1 5 10 15

Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
 20 25 30

Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala Ala Cys Val Gly Pro  
 35 40 45

Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His  
 50 55 60

Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
 65 70 75 80

Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu  
 85 90 95

Leu Glu Glu Pro Val Lys Val Ser Ser His Val His Thr Val Thr Leu  
 100 105 110

Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr  
 115 120 125

Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro  
 130 135 140

Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala  
 145 150 155 160

Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg  
 165 170 175

Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly  
 180 185 190

Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln  
 195 200 205

Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro  
 210 215 220

Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr  
 225 230 235 240

Val Pro Lys Lys Pro  
 245

<210> 30  
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 <212> DNA  
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<220>  
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 Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp Pro Trp Gln Val  
 1 5 10 15  
 agc ctg aga gtc cac ggc cca tac tgg atg cac ttc tgc ggg ggc tcc 96  
 Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
 20 25 30  
 ctc atc cac ccc cag tgg gtg ctg acc gca gcg cac tgc gtg gga ccg 144  
 Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro  
 35 40 45  
 gac gtc aag gat ctg gcc gcc ctc agg gtg caa ctg cgg gag cag cac 192  
 Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His  
 50 55 60  
 ctc tac tac cag gac cag ctg ctg ccg gtc agc agg atc atc gtg cac 240  
 Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
 65 70 75 80  
 cca cag ttc tac acc gcc cag atc gga gcg gca atc gcc ctg ctg gag 288  
 Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Ala Ile Ala Leu Leu Glu  
 85 90 95  
 ctg gag gag ccg gtg aag gtc tcc agc cac gtc cac acg gtc acc ctg 336  
 Leu Glu Glu Pro Val Lys Val Ser Ser His Val His Thr Val Thr Leu  
 100 105 110  
 ccc cct gcc tca gag acc ttc ccc ccg ggg atg ccg tgc tgg gtc act 384  
 Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr  
 115 120 125  
 ggc tgg ggc gat gtg gac aat gat gag cgc ctc cca ccg cca ttt cct 432  
 Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro  
 130 135 140  
 ctg aag cag gtg aag gtc ccc ata atg gaa aac cac att tgt gac gca 480

## 34506104.ST25.txt

Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala  
 145 150 155 160  
 aaa tac cac ctt ggc gcc tac acg gga gac gac gtc cgc atc gtc cgt 528  
 Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg  
 165 170 175  
 gac gac atg ctg tgt gcc ggg aac acc cgg agg gac tca tgc cag ggc 576  
 Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly  
 180 185 190  
 gac tcc gga ggg ccc ctg gtg tgc aag gtg aat ggc acc tgg ctg cag 624  
 Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln  
 195 200 205  
 gcg ggc gtg gtc agc tgg ggc gag ggc tgt gcc cag ccc aac cgg cct 672  
 Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro  
 210 215 220  
 ggc atc tac acc cgt gtc acc tac tac ttg gac tgg atc cac cac tat 720  
 Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr  
 225 230 235 240  
 gtc ccc aaa aag ccg 735  
 Val Pro Lys Lys Pro  
 245

<210> 31  
 <211> 245  
 <212> PRT  
 <213> Homo sapiens

<400> 31

Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp Pro Trp Gln Val  
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 Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
 20 25 30  
 Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro  
 35 40 45  
 Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His  
 50 55 60  
 Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
 65 70 75 80  
 Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Ala Ile Ala Leu Leu Glu  
 85 90 95

Leu Glu Glu Pro Val Lys Val Ser Ser His Val His Thr Val Thr Leu  
 100 105 110

Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr  
 115 120 125

Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro  
 130 135 140

Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala  
 145 150 155 160

Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg  
 165 170 175

Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly  
 180 185 190

Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln  
 195 200 205

Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro  
 210 215 220

Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr  
 225 230 235 240

Val Pro Lys Lys Pro  
 245

<210> 32  
 <211> 735  
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 Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp Pro Trp Gln Val  
 1 5 10 15  
 agc ctg aga gtc cac ggc cca tac tgg atg cac ttc tgc ggg ggc tcc 96  
 Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
 20 25 30

ctc atc cac ccc cag tgg gtg ctg acc gca gcg cac tgc gtg gga ccg Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro 35 40 45	144
gac gtc aag gat ctg gcc gcc ctc agg gtg caa ctg cgg gag cag cac Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His 50 55 60	192
ctc tac tac cag gac cag ctg ctg ccg gtc agc agg atc atc gtg cac Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His 65 70 75 80	240
cca cag ttc tac acc gcc cag atc gga gcg gac atc gcc ctg ctg gag Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu 85 90 95	288
ctg gag gag ccg gtg aag gtc tcc agc cac gtc cac acg gtc acc ctg Leu Glu Glu Pro Val Lys Val Ser Ser His Val His Thr Val Thr Leu 100 105 110	336
ccc cct gcc tca gag acc ttc ccc ccg ggg atg ccg tgc tgg gtc act Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr 115 120 125	384
ggc tgg ggc gat gtg gac aat gat gag cgc ctc cca ccg cca ttt cct Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro 130 135 140	432
ctg aag cag gtg aag gtc ccc ata atg gaa aac cac att tgt gac gca Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala 145 150 155 160	480
aaa tac cac ctt ggc gcc tac acg gga gac gac gtc cgc atc gtc cgt Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg 165 170 175	528
gac gac atg ctg tgt gcc ggg aac acc ccg agg gac tca tgt caa ggc Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly 180 185 190	576
gac gcc ggc gga cct ctg gtg tgc aag gtg aat ggc acc tgg ctg cag Asp Ala Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln 195 200 205	624
gcg ggc gtg gtc agc tgg ggc gag ggc tgt gcc cag ccc aac ccg cct Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro 210 215 220	672
ggc atc tac acc cgt gtc acc tac tac ttg gac tgg atc cac cac tat Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr 225 230 235 240	720
gtc ccc aaa aag ccg Val Pro Lys Lys Pro 245	735

<211> 245  
 <212> PRT  
 <213> Homo sapiens

<400> 33

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Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp Pro Trp Gln Val
1          5          10          15

Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser
          20          25          30

Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro
          35          40          45

Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His
          50          55          60

Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His
          65          70          75          80

Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu
          85          90          95

Leu Glu Glu Pro Val Lys Val Ser Ser His Val His Thr Val Thr Leu
          100          105          110

Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr
          115          120          125

Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro
          130          135          140

Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala
          145          150          155          160

Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg
          165          170          175

Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly
          180          185          190

Asp Ala Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln
          195          200          205

Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro

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210

215

220

Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr  
 225 230 235 240

Val Pro Lys Lys Pro  
 245

<210> 34  
 <211> 735  
 <212> DNA  
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<220>  
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<400> 34  
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 agc ctg aga gtc cac ggc cca tac tgg atg cac ttc tgc ggg ggc tcc 96  
 Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
 20 25 30  
 ctc atc cac ccc cag tgg gtg ctg acc gca gcg cac tgc gtg gga ccg 144  
 Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro  
 35 40 45  
 gac gtc aag gat ctg gcc gcc ctc agg gtg caa ctg cgg gag cag cac 192  
 Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His  
 50 55 60  
 ctc tac tac cag gac cag ctg ctg ccg gtc agc agg atc atc gtg cac 240  
 Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
 65 70 75 80  
 cca cag ttc tac acc gcc cag atc gga gcg gac atc gcc ctg ctg gag 288  
 Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu  
 85 90 95  
 ctg gag gag ccg gtg aag gtc tcc agc cac gtc cac acg gtc acc ctg 336  
 Leu Glu Glu Pro Val Lys Val Ser Ser His Val His Thr Val Thr Leu  
 100 105 110  
 ccc cct gcc tca gag acc ttc ccc ccg ggg atg ccg tgc tgg gtc act 384  
 Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr  
 115 120 125  
 ggc tgg ggc gat gtg gac aat gat gag cgc ctc cca ccg cca ttt cct 432  
 Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro  
 130 135 140

## 34506104.ST25.txt

ctg aag cag gtg aag gtc ccc ata atg gaa aac cac att tgt gac gca 480  
 Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala  
 145 150 155 160  
  
 aaa tac cac ctt ggc gcc tac acg gga gac gac gtc cgc atc gtc cgt 528  
 Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg  
 165 170 175  
  
 gac gac atg ctg tgt gcc ggg aac acc cgg agg gac tca tgc caa gga 576  
 Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly  
 180 185 190  
  
 gac gcc ggc gga cca ctg gtg tgc aag gtg aat ggc acc tgg ctg cag 624  
 Asp Ala Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln  
 195 200 205  
  
 gcg ggc gtg gtc agc tgg ggc gag ggc tgt gcc cag ccc aac cgg cct 672  
 Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro  
 210 215 220  
  
 ggc atc tac acc cgt gtc acc tac tac ttg gac tgg atc cac cac tat 720  
 Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr  
 225 230 235 240  
  
 gtc ccc aaa aag ccg 735  
 Val Pro Lys Lys Pro  
 245

<210> 35  
 <211> 245  
 <212> PRT  
 <213> Homo sapiens

<400> 35

Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp Pro Trp Gln Val  
 1 5 10 15  
  
 Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
 20 25 30  
  
 Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro  
 35 40 45  
  
 Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His  
 50 55 60  
  
 Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
 65 70 75 80  
  
 Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu  
 85 90 95



34506104.ST25.txt

Leu Glu Glu Pro Val Lys Val Ser Ser His Val His Thr Val Thr Leu  
100 105 110

Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr  
115 120 125

Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro  
130 135 140

Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala  
145 150 155 160

Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg  
165 170 175

Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly  
180 185 190

Asp Ala Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln  
195 200 205

Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro  
210 215 220

Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr  
225 230 235 240

Val Pro Lys Lys Pro  
245

<210> 36  
<211> 771  
<212> DNA  
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<220>  
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Leu Glu Lys Arg Ile Val Gly Gly Gln Glu Ala Pro Arg Ser  
1 5 10

aag tgg ccc tgg cag gtg agc ctg aga gtc cac ggc cca tac tgg atg 96  
Lys Trp Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met

15	20	25	30	
cac ttc tgc ggg ggc tcc ctc atc cac ccc cag tgg gtg ctg acc gcc				144
His Phe Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala	35	40	45	
gcg gcg tgc gtg gga ccg gac gtc aag gat ctg gcc gcc ctc agg gtg				192
Ala Ala Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val	50	55	60	
caa ctg cgg gag cag cac ctc tac tac cag gac cag ctg ctg ccg gtc				240
Gln Leu Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val	65	70	75	
agc agg atc atc gtg cac cca cag ttc tac acc gcc cag atc gga gcg				288
Ser Arg Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala	80	85	90	
gac atc gcc ctg ctg gag ctg gag gag ccg gtg aac gtc tcc agc cac				336
Asp Ile Ala Leu Leu Glu Leu Glu Glu Pro Val Asn Val Ser Ser His	95	100	105	110
gtc cac acg gtc acc ctg ccc cct gcc tca gag acc ttc ccc ccg ggg				384
Val His Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly	115	120	125	
atg ccg tgc tgg gtc act ggc tgg ggc gat gtg gac aat gat gag cgc				432
Met Pro Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg	130	135	140	
ctc cca ccg cca ttt cct ctg aag cag gtg aag gtc ccc ata atg gaa				480
Leu Pro Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu	145	150	155	
aac cac att tgt gac gca aaa tac cac ctt ggc gcc tac acg gga gac				528
Asn His Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp	160	165	170	
gac gtc cgc atc gtc cgt gac gac atg ctg tgt gcc ggg aac acc ccg				576
Asp Val Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg	175	180	185	190
agg gac tca tgc cag ggc gac tcc gga ggg ccc ctg gtg tgc aag gtg				624
Arg Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Lys Val	195	200	205	
aat ggc acc tgg ctg cag gcg ggc gtg gtc agc tgg ggc gag ggc tgt				672
Asn Gly Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys	210	215	220	
gcc cag ccc aac ccg cct ggc atc tac acc cgt gtc acc tac tac ttg				720
Ala Gln Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu	225	230	235	
gac tgg atc cac cac tat gtc ccc aaa aag ccg tgaagcggcc gccgtcgt				771
Asp Trp Ile His His Tyr Val Pro Lys Lys Pro	240	245		

<210> 37  
 <211> 249  
 <212> PRT  
 <213> Homo sapiens

<400> 37

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Leu Glu Lys Arg Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp
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Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe
          20          25          30

Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala Ala
          35          40          45

Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu
          50          55          60

Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg
65          70          75          80

Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile
          85          90          95

Ala Leu Leu Glu Leu Glu Glu Pro Val Asn Val Ser Ser His Val His
          100          105          110

Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro
          115          120          125

Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro
          130          135          140

Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His
145          150          155          160

Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val
          165          170          175

Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp
          180          185          190

Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly
          195          200          205

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Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln  
 210 215 220

Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp  
 225 230 235 240

Ile His His Tyr Val Pro Lys Lys Pro  
 245

<210> 38  
 <211> 771  
 <212> DNA  
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<220>  
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 <222> (7)..(753)  
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 Lys Trp Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met  
 15 20 25 30

cac ttc tgc ggg ggc tcc ctc atc cac ccc cag tgg gtg ctg acc gca 144  
 His Phe Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala  
 35 40 45

gcg cac tgc gtg gga ccg gac gtc aag gat ctg gcc gcc ctc agg gtg 192  
 Ala His Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val  
 50 55 60

caa ctg cgg gag cag cac ctc tac tac cag gac cag ctg ctg ccg gtc 240  
 Gln Leu Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val  
 65 70 75

agc agg atc atc gtg cac cca cag ttc tac acc gcc cag atc gga gcg 288  
 Ser Arg Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala  
 80 85 90

gca atc gcc ctg ctg gag ctg gag gag ccg gtg aac gtc tcc agc cac 336  
 Ala Ile Ala Leu Leu Glu Leu Glu Glu Pro Val Asn Val Ser Ser His  
 95 100 105 110

gtc cac acg gtc acc ctg ccc cct gcc tca gag acc ttc ccc ccg ggg 384  
 Val His Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly  
 115 120 125

atg ccg tgc tgg gtc act ggc tgg ggc gat gtg gac aat gat gag cgc 432  
 Met Pro Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg  
 130 135 140

34506104.ST25.txt

ctc cca ccg cca ttt cct ctg aag cag gtg aag gtc ccc ata atg gaa	480
Leu Pro Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu	
145 150 155	
aac cac att tgt gac gca aaa tac cac ctt ggc gcc tac acg gga gac	528
Asn His Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp	
160 165 170	
gac gtc cgc atc gtc cgt gac gac atg ctg tgt gcc ggg aac acc cgg	576
Asp Val Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg	
175 180 185 190	
agg gac tca tgc cag ggc gac tcc gga ggg ccc ctg gtg tgc aag gtg	624
Arg Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Lys Val	
195 200 205	
aat ggc acc tgg ctg cag gcg ggc gtg gtc agc tgg ggc gag ggc tgt	672
Asn Gly Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys	
210 215 220	
gcc cag ccc aac cgg cct ggc atc tac acc cgt gtc acc tac tac ttg	720
Ala Gln Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu	
225 230 235	
gac tgg atc cac cac tat gtc ccc aaa aag ccg tgaagcggcc gccgtcgt	771
Asp Trp Ile His His Tyr Val Pro Lys Lys Pro	
240 245	

<210> 39  
 <211> 249  
 <212> PRT  
 <213> Homo sapiens

<400> 39

Leu Glu Lys Arg Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp	
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Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe	
20 25 30	
Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His	
35 40 45	
Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu	
50 55 60	
Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg	
65 70 75 80	
Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Ala Ile	
85 90 95	

Ala Leu Leu Glu Leu Glu Glu Pro Val Asn Val Ser Ser His Val His  
 100 105 110

Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro  
 115 120 125

Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro  
 130 135 140

Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His  
 145 150 155 160

Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val  
 165 170 175

Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp  
 180 185 190

Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly  
 195 200 205

Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln  
 210 215 220

Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp  
 225 230 235 240

Ile His His Tyr Val Pro Lys Lys Pro  
 245

<210> 40  
 <211> 771  
 <212> DNA  
 <213> Homo sapiens

<220>  
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<400> 40  
 gggccc ctc gag aaa aga atc gtc ggg ggt cag gag gcc ccc agg agc 48  
 Leu Glu Lys Arg Ile Val Gly Gly Gln Glu Ala Pro Arg Ser  
 1 5 10

aag tgg ccc tgg cag gtg agc ctg aga gtc cac ggc cca tac tgg atg 96

## 34506104.ST25.txt

Lys	Trp	Pro	Trp	Gln	Val	Ser	Leu	Arg	Val	His	Gly	Pro	Tyr	Trp	Met	
15					20					25					30	
cac	ttc	tgc	ggg	ggc	tcc	ctc	atc	cac	ccc	cag	tgg	gtg	ctg	acc	gca	144
His	Phe	Cys	Gly	Gly	Ser	Leu	Ile	His	Pro	Gln	Trp	Val	Leu	Thr	Ala	
			35						40					45		
gcg	cac	tgc	gtg	gga	ccg	gac	gtc	aag	gat	ctg	gcc	gcc	ctc	agg	gtg	192
Ala	His	Cys	Val	Gly	Pro	Asp	Val	Lys	Asp	Leu	Ala	Ala	Leu	Arg	Val	
			50					55					60			
caa	ctg	cgg	gag	cag	cac	ctc	tac	tac	cag	gac	cag	ctg	ctg	ccg	gtc	240
Gln	Leu	Arg	Glu	Gln	His	Leu	Tyr	Tyr	Gln	Asp	Gln	Leu	Leu	Pro	Val	
			65				70					75				
agc	agg	atc	atc	gtg	cac	cca	cag	ttc	tac	acc	gcc	cag	atc	gga	gcg	288
Ser	Arg	Ile	Ile	Val	His	Pro	Gln	Phe	Tyr	Thr	Ala	Gln	Ile	Gly	Ala	
	80					85					90					
gac	atc	gcc	ctg	ctg	gag	ctg	gag	gag	ccg	gtg	aac	gtc	tcc	agc	cac	336
Asp	Ile	Ala	Leu	Leu	Glu	Leu	Glu	Glu	Pro	Val	Asn	Val	Ser	Ser	His	
	95				100					105					110	
gtc	cac	acg	gtc	acc	ctg	ccc	cct	gcc	tca	gag	acc	ttc	ccc	ccg	ggg	384
Val	His	Thr	Val	Thr	Leu	Pro	Pro	Ala	Ser	Glu	Thr	Phe	Pro	Pro	Gly	
				115				120						125		
atg	ccg	tgc	tgg	gtc	act	ggc	tgg	ggc	gat	gtg	gac	aat	gat	gag	cgc	432
Met	Pro	Cys	Trp	Val	Thr	Gly	Trp	Gly	Asp	Val	Asp	Asn	Asp	Glu	Arg	
			130					135					140			
ctc	cca	ccg	cca	ttt	cct	ctg	aag	cag	gtg	aag	gtc	ccc	ata	atg	gaa	480
Leu	Pro	Pro	Pro	Phe	Pro	Leu	Lys	Gln	Val	Lys	Val	Pro	Ile	Met	Glu	
			145				150					155				
aac	cac	att	tgt	gac	gca	aaa	tac	cac	ctt	ggc	gcc	tac	acg	gga	gac	528
Asn	His	Ile	Cys	Asp	Ala	Lys	Tyr	His	Leu	Gly	Ala	Tyr	Thr	Gly	Asp	
	160					165					170					
gac	gtc	cgc	atc	gtc	cgt	gac	gac	atg	ctg	tgt	gcc	ggg	aac	acc	ccg	576
Asp	Val	Arg	Ile	Val	Arg	Asp	Asp	Met	Leu	Cys	Ala	Gly	Asn	Thr	Arg	
	175				180					185					190	
agg	gac	tca	tgt	caa	ggc	gac	gcc	ggc	gga	cct	ctg	gtg	tgc	aag	gtg	624
Arg	Asp	Ser	Cys	Gln	Gly	Asp	Ala	Gly	Gly	Pro	Leu	Val	Cys	Lys	Val	
				195				200						205		
aat	ggc	acc	tgg	ctg	cag	gcg	ggc	gtg	gtc	agc	tgg	ggc	gag	ggc	tgt	672
Asn	Gly	Thr	Trp	Leu	Gln	Ala	Gly	Val	Val	Ser	Trp	Gly	Glu	Gly	Cys	
			210					215					220			
gcc	cag	ccc	aac	cgg	cct	ggc	atc	tac	acc	cgt	gtc	acc	tac	tac	ttg	720
Ala	Gln	Pro	Asn	Arg	Pro	Gly	Ile	Tyr	Thr	Arg	Val	Thr	Tyr	Tyr	Leu	
			225				230					235				
gac	tgg	atc	cac	cac	tat	gtc	ccc	aaa	aag	ccg	tgaagcggcc	gccgctcgt				771
Asp	Trp	Ile	His	His	Tyr	Val	Pro	Lys	Lys	Pro						
	240					245										

<210> 41  
 <211> 249  
 <212> PRT  
 <213> Homo sapiens

<400> 41

Leu Glu Lys Arg Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp  
 1 5 10 15

Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe  
 20 25 30

Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His  
 35 40 45

Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu  
 50 55 60

Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg  
 65 70 75 80

Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile  
 85 90 95

Ala Leu Leu Glu Leu Glu Glu Pro Val Asn Val Ser Ser His Val His  
 100 105 110

Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro  
 115 120 125

Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro  
 130 135 140

Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His  
 145 150 155 160

Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val  
 165 170 175

Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp  
 180 185 190

Ser Cys Gln Gly Asp Ala Gly Gly Pro Leu Val Cys Lys Val Asn Gly  
 195 200 205



Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln  
 210 215 220

Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp  
 225 230 235 240

Ile His His Tyr Val Pro Lys Lys Pro  
 245

<210> 42  
 <211> 771  
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<400> 42  
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 Leu Glu Lys Arg Ile Val Gly Gly Gln Glu Ala Pro Arg Ser  
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 aag tgg ccc tgg cag gtg agc ctg aga gtc cac ggc cca tac tgg atg 96  
 Lys Trp Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met  
 15 20 25 30  
 cac ttc tgc ggg ggc tcc ctc atc cac ccc cag tgg gtg ctg acc gca 144  
 His Phe Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala  
 35 40 45  
 gcg cac tgc gtg gga ccg gac gtc aag gat ctg gcc gcc ctc agg gtg 192  
 Ala His Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val  
 50 55 60  
 caa ctg cgg gag cag cac ctc tac tac cag gac cag ctg ctg ccg gtc 240  
 Gln Leu Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val  
 65 70 75  
 agc agg atc atc gtg cac cca cag ttc tac acc gcc cag atc gga gcg 288  
 Ser Arg Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala  
 80 85 90  
 gac atc gcc ctg ctg gag ctg gag gag ccg gtg aac gtc tcc agc cac 336  
 Asp Ile Ala Leu Leu Glu Leu Glu Glu Pro Val Asn Val Ser Ser His  
 95 100 105 110  
 gtc cac acg gtc acc ctg ccc cct gcc tca gag acc ttc ccc ccg ggg 384  
 Val His Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly  
 115 120 125  
 atg ccg tgc tgg gtc act ggc tgg ggc gat gtg gac aat gat gag cgc 432  
 Met Pro Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg

130

135

140

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ctc cca ccg cca ttt cct ctg aag cag gtg aag gtc ccc ata atg gaa      480
Leu Pro Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu
      145                      150                      155

aac cac att tgt gac gca aaa tac cac ctt ggc gcc tac acg gga gac      528
Asn His Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp
      160                      165                      170

gac gtc cgc atc gtc cgt gac gac atg ctg tgt gcc ggg aac acc cgg      576
Asp Val Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg
      175                      180                      185                      190

agg gac tca tgc caa gga gac gcc ggc gga cca ctg gtg tgc aag gtg      624
Arg Asp Ser Cys Gln Gly Asp Ala Gly Gly Pro Leu Val Cys Lys Val
      195                      200                      205

aat ggc acc tgg ctg cag gcg ggc gtg gtc agc tgg ggc gag ggc tgt      672
Asn Gly Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys
      210                      215                      220

gcc cag ccc aac cgg cct ggc atc tac acc cgt gtc acc tac tac ttg      720
Ala Gln Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu
      225                      230                      235

gac tgg atc cac cac tat gtc ccc aaa aag ccg tgaagcggcc gccgtcgt      771
Asp Trp Ile His His Tyr Val Pro Lys Lys Pro
      240                      245

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&lt;210&gt; 43

&lt;211&gt; 249

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 43

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Leu Glu Lys Arg Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp
1                      5                      10                      15

Pro Trp Gln Val Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe
      20                      25                      30

Cys Gly Gly Ser Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His
      35                      40                      45

Cys Val Gly Pro Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu
      50                      55                      60

Arg Glu Gln His Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg
65                      70                      75                      80

Ile Ile Val His Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile

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85

90

95

Ala Leu Leu Glu Leu Glu Glu Pro Val Asn Val Ser Ser His Val His  
100 105 110

Thr Val Thr Leu Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro  
115 120 125

Cys Trp Val Thr Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro  
130 135 140

Pro Pro Phe Pro Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His  
145 150 155 160

Ile Cys Asp Ala Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val  
165 170 175

Arg Ile Val Arg Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp  
180 185 190

Ser Cys Gln Gly Asp Ala Gly Gly Pro Leu Val Cys Lys Val Asn Gly  
195 200 205

Thr Trp Leu Gln Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln  
210 215 220

Pro Asn Arg Pro Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp  
225 230 235 240

Ile His His Tyr Val Pro Lys Lys Pro  
245

<210> 44  
<211> 735  
<212> DNA  
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<220>  
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<223>

<400> 44  
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1 5 10 15

48

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agc ctg aga gtc cac ggc cca tac tgg atg cac ttc tgc ggg ggc tcc	96
Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser	
20 25 30	
ctc atc cac ccc cag tgg gtg ctg acc gcc gcg gcg tgc gtg gga ccg	144
Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala Ala Cys Val Gly Pro	
35 40 45	
gac gtc aag gat ctg gcc gcc ctc agg gtg caa ctg cgg gag cag cac	192
Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His	
50 55 60	
ctc tac tac cag gac cag ctg ctg ccg gtc agc agg atc atc gtg cac	240
Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His	
65 70 75 80	
cca cag ttc tac acc gcc cag atc gga gcg gac atc gcc ctg ctg gag	288
Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu	
85 90 95	
ctg gag gag ccg gtg aac gtc tcc agc cac gtc cac acg gtc acc ctg	336
Leu Glu Glu Pro Val Asn Val Ser Ser His Val His Thr Val Thr Leu	
100 105 110	
ccc cct gcc tca gag acc ttc ccc ccg ggg atg ccg tgc tgg gtc act	384
Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr	
115 120 125	
ggc tgg ggc gat gtg gac aat gat gag cgc ctc cca ccg cca ttt cct	432
Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro	
130 135 140	
ctg aag cag gtg aag gtc ccc ata atg gaa aac cac att tgt gac gca	480
Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala	
145 150 155 160	
aaa tac cac ctt ggc gcc tac acg gga gac gac gtc cgc atc gtc cgt	528
Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg	
165 170 175	
gac gac atg ctg tgt gcc ggg aac acc ccg agg gac tca tgc cag ggc	576
Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly	
180 185 190	
gac tcc gga ggg ccc ctg gtg tgc aag gtg aat ggc acc tgg ctg cag	624
Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln	
195 200 205	
gcg ggc gtg gtc agc tgg ggc gag ggc tgt gcc cag ccc aac cgg cct	672
Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro	
210 215 220	
ggc atc tac acc cgt gtc acc tac tac ttg gac tgg atc cac cac tat	720
Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr	
225 230 235 240	
gtc ccc aaa aag ccg	735
Val Pro Lys Lys Pro	
245	

<210> 45  
 <211> 245  
 <212> PRT  
 <213> Homo sapiens

<400> 45

Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp Pro Trp Gln Val  
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Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
 20 25 30

Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala Ala Cys Val Gly Pro  
 35 40 45

Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His  
 50 55 60

Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
 65 70 75 80

Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu  
 85 90 95

Leu Glu Glu Pro Val Asn Val Ser Ser His Val His Thr Val Thr Leu  
 100 105 110

Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr  
 115 120 125

Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro  
 130 135 140

Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala  
 145 150 155 160

Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg  
 165 170 175

Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly  
 180 185 190

Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln  
 195 200 205

Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro  
 210 215 220

Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr  
 225 230 235 240

Val Pro Lys Lys Pro  
 245

<210> 46  
 <211> 735  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)..(735)  
 <223>

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 1 5 10 15  
 agc ctg aga gtc cac ggc cca tac tgg atg cac ttc tgc ggg ggc tcc 96  
 Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
 20 25 30  
 ctc atc cac ccc cag tgg gtg ctg acc gca gcg cac tgc gtg gga ccg 144  
 Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro  
 35 40 45  
 gac gtc aag gat ctg gcc gcc ctc agg gtg caa ctg cgg gag cag cac 192  
 Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His  
 50 55 60  
 ctc tac tac cag gac cag ctg ctg ccg gtc agc agg atc atc gtg cac 240  
 Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
 65 70 75 80  
 cca cag ttc tac acc gcc cag atc gga gcg gca atc gcc ctg ctg gag 288  
 Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Ala Ile Ala Leu Leu Glu  
 85 90 95  
 ctg gag gag ccg gtg aac gtc tcc agc cac gtc cac acg gtc acc ctg 336  
 Leu Glu Glu Pro Val Asn Val Ser Ser His Val His Thr Val Thr Leu  
 100 105 110  
 ccc cct gcc tca gag acc ttc ccc ccg ggg atg ccg tgc tgg gtc act 384  
 Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr  
 115 120 125  
 ggc tgg ggc gat gtg gac aat gat gag cgc ctc cca ccg cca ttt cct 432

## 34506104.ST25.txt

Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro  
 130 135 140  
 ctg aag cag gtg aag gtc ccc ata atg gaa aac cac att tgt gac gca 480  
 Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala  
 145 150 155 160  
 aaa tac cac ctt ggc gcc tac acg gga gac gac gtc cgc atc gtc cgt 528  
 Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg  
 165 170 175  
 gac gac atg ctg tgt gcc ggg aac acc cgg agg gac tca tgc cag ggc 576  
 Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly  
 180 185 190  
 gac tcc gga ggg ccc ctg gtg tgc aag gtg aat ggc acc tgg ctg cag 624  
 Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln  
 195 200 205  
 gcg ggc gtg gtc agc tgg ggc gag ggc tgt gcc cag ccc aac cgg cct 672  
 Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro  
 210 215 220  
 ggc atc tac acc cgt gtc acc tac tac ttg gac tgg atc cac cac tat 720  
 Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr  
 225 230 235 240  
 gtc ccc aaa aag ccg 735  
 Val Pro Lys Lys Pro  
 245

<210> 47  
 <211> 245  
 <212> PRT  
 <213> Homo sapiens

<400> 47

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 1 5 10 15  
 Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
 20 25 30  
 Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro  
 35 40 45  
 Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His  
 50 55 60  
 Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
 65 70 75 80

34506104.ST25.txt

Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Ala Ile Ala Leu Leu Glu  
85 90 95

Leu Glu Glu Pro Val Asn Val Ser Ser His Val His Thr Val Thr Leu  
100 105 110

Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr  
115 120 125

Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro  
130 135 140

Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala  
145 150 155 160

Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg  
165 170 175

Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly  
180 185 190

Asp Ser Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln  
195 200 205

Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro  
210 215 220

Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr  
225 230 235 240

Val Pro Lys Lys Pro  
245

<210> 48  
<211> 735  
<212> DNA  
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Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp Pro Trp Gln Val  
1 5 10 15

48



## 34506104.ST25.txt

agc ctg aga gtc cac ggc cca tac tgg atg cac ttc tgc ggg ggc tcc Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser 20 25 30	96
ctc atc cac ccc cag tgg gtg ctg acc gca gcg cac tgc gtg gga ccg Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro 35 40 45	144
gac gtc aag gat ctg gcc gcc ctc agg gtg caa ctg cgg gag cag cac Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His 50 55 60	192
ctc tac tac cag gac cag ctg ctg ccg gtc agc agg atc atc gtg cac Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His 65 70 75 80	240
cca cag ttc tac acc gcc cag atc gga gcg gac atc gcc ctg ctg gag Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu 85 90 95	288
ctg gag gag ccg gtg aac gtc tcc agc cac gtc cac acg gtc acc ctg Leu Glu Glu Pro Val Asn Val Ser Ser His Val His Thr Val Thr Leu 100 105 110	336
ccc cct gcc tca gag acc ttc ccc ccg ggg atg ccg tgc tgg gtc act Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr 115 120 125	384
ggc tgg ggc gat gtg gac aat gat gag cgc ctc cca ccg cca ttt cct Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro 130 135 140	432
ctg aag cag gtg aag gtc ccc ata atg gaa aac cac att tgt gac gca Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala 145 150 155 160	480
aaa tac cac ctt ggc gcc tac acg gga gac gac gtc cgc atc gtc cgt Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg 165 170 175	528
gac gac atg ctg tgt gcc ggg aac acc ccg agg gac tca tgt caa ggc Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly 180 185 190	576
gac gcc ggc gga cct ctg gtg tgc aag gtg aat ggc acc tgg ctg cag Asp Ala Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln 195 200 205	624
gcg ggc gtg gtc agc tgg ggc gag ggc tgt gcc cag ccc aac cgg cct Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro 210 215 220	672
ggc atc tac acc cgt gtc acc tac tac ttg gac tgg atc cac cac tat Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr 225 230 235 240	720
gtc ccc aaa aag ccg Val Pro Lys Lys Pro	735

245

<210> 49  
 <211> 245  
 <212> PRT  
 <213> Homo sapiens

<400> 49

Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp Pro Trp Gln Val  
 1 5 10 15

Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
 20 25 30

Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro  
 35 40 45

Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His  
 50 55 60

Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
 65 70 75 80

Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu  
 85 90 95

Leu Glu Glu Pro Val Asn Val Ser Ser His Val His Thr Val Thr Leu  
 100 105 110

Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr  
 115 120 125

Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro  
 130 135 140

Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala  
 145 150 155 160

Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg  
 165 170 175

Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly  
 180 185 190

Asp Ala Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln

195

200

205

Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro  
 210 215 220

Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr  
 225 230 235 240

Val Pro Lys Lys Pro  
 245

<210> 50  
 <211> 735  
 <212> DNA  
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<220>  
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 <222> (1)..(735)  
 <223>

<400> 50  
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 1 5 10 15  
 agc ctg aga gtc cac ggc cca tac tgg atg cac ttc tgc ggg ggc tcc 96  
 Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
 20 25 30  
 ctc atc cac ccc cag tgg gtg ctg acc gca gcg cac tgc gtg gga ccg 144  
 Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro  
 35 40 45  
 gac gtc aag gat ctg gcc gcc ctc agg gtg caa ctg cgg gag cag cac 192  
 Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His  
 50 55 60  
 ctc tac tac cag gac cag ctg ctg ccg gtc agc agg atc atc gtg cac 240  
 Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
 65 70 75 80  
 cca cag ttc tac acc gcc cag atc gga gcg gac atc gcc ctg ctg gag 288  
 Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu  
 85 90 95  
 ctg gag gag ccg gtg aac gtc tcc agc cac gtc cac acg gtc acc ctg 336  
 Leu Glu Glu Pro Val Asn Val Ser Ser His Val His Thr Val Thr Leu  
 100 105 110  
 ccc cct gcc tca gag acc ttc ccc ccg ggg atg ccg tgc tgg gtc act 384  
 Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr  
 115 120 125

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ggc tgg ggc gat gtg gac aat gat gag cgc ctc cca ccg cca ttt cct 432  
 Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro  
 130 135 140

ctg aag cag gtg aag gtc ccc ata atg gaa aac cac att tgt gac gca 480  
 Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala  
 145 150 155 160

aaa tac cac ctt ggc gcc tac acg gga gac gac gtc cgc atc gtc cgt 528  
 Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg  
 165 170 175

gac gac atg ctg tgt gcc ggg aac acc cgg agg gac tca tgc caa gga 576  
 Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly  
 180 185 190

gac gcc ggc gga cca ctg gtg tgc aag gtg aat ggc acc tgg ctg cag 624  
 Asp Ala Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln  
 195 200 205

gcg ggc gtg gtc agc tgg ggc gag ggc tgt gcc cag ccc aac cgg cct 672  
 Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro  
 210 215 220

ggc atc tac acc cgt gtc acc tac tac ttg gac tgg atc cac cac tat 720  
 Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr  
 225 230 235 240

gtc ccc aaa aag ccg 735  
 Val Pro Lys Lys Pro  
 245

<210> 51  
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 <212> PRT  
 <213> Homo sapiens

<400> 51

Ile Val Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp Pro Trp Gln Val  
 1 5 10 15

Ser Leu Arg Val His Gly Pro Tyr Trp Met His Phe Cys Gly Gly Ser  
 20 25 30

Leu Ile His Pro Gln Trp Val Leu Thr Ala Ala His Cys Val Gly Pro  
 35 40 45

Asp Val Lys Asp Leu Ala Ala Leu Arg Val Gln Leu Arg Glu Gln His  
 50 55 60

Leu Tyr Tyr Gln Asp Gln Leu Leu Pro Val Ser Arg Ile Ile Val His  
 65 70 75 80

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Pro Gln Phe Tyr Thr Ala Gln Ile Gly Ala Asp Ile Ala Leu Leu Glu
      85                      90                      95

Leu Glu Glu Pro Val Asn Val Ser Ser His Val His Thr Val Thr Leu
      100                      105                      110

Pro Pro Ala Ser Glu Thr Phe Pro Pro Gly Met Pro Cys Trp Val Thr
      115                      120                      125

Gly Trp Gly Asp Val Asp Asn Asp Glu Arg Leu Pro Pro Pro Phe Pro
      130                      135                      140

Leu Lys Gln Val Lys Val Pro Ile Met Glu Asn His Ile Cys Asp Ala
      145                      150                      155                      160

Lys Tyr His Leu Gly Ala Tyr Thr Gly Asp Asp Val Arg Ile Val Arg
      165                      170                      175

Asp Asp Met Leu Cys Ala Gly Asn Thr Arg Arg Asp Ser Cys Gln Gly
      180                      185                      190

Asp Ala Gly Gly Pro Leu Val Cys Lys Val Asn Gly Thr Trp Leu Gln
      195                      200                      205

Ala Gly Val Val Ser Trp Gly Glu Gly Cys Ala Gln Pro Asn Arg Pro
      210                      215                      220

Gly Ile Tyr Thr Arg Val Thr Tyr Tyr Leu Asp Trp Ile His His Tyr
      225                      230                      235                      240

Val Pro Lys Lys Pro
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<210> 52
<211> 275
<212> PRT
<213> Homo sapiens

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<223> Beta I and Beta II are N at this residue

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<223> Beta I and Beta II are G at this residue

<220>

<221> VARIANT

<222> (28)..(28)

<223> Beta I and Beta II are R at this residue

<220>

<221> VARIANT

<222> (29)..(29)

<223> Beta I and Beta II are V at this residue

<220>

<221> VARIANT

<222> (51)..(53)

<223> Beta I and Beta II are HGP at these residues

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<223> Beta I and Beta II are V at this residue

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<221> VARIANT

<222> (85)..(85)

<223> Beta I and Beta II are A at this residue

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<222> (115)..(116)

<223> Beta I and Beta II are TA at these residues

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<223> Beta I and Beta II are I at this residue

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<221> VARIANT

<222> (132)..(132)

<223> Beta II is K at this residue

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<221> VARIANT

<222> (133)..(133)

<223> Beta I and Beta II are V at this residue

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<221> VARIANT

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 <223> Beta I and Beta II are H at this residue

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 <223> Beta I and Beta II are T at this residue

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 <223> Beta I and Beta II are TR at these residues

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 <223> Beta I and Beta II are Q at this residue

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 <223> Beta I and Beta II are G at this residue

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Met Leu Ser Leu Leu Leu Leu Ala Leu Pro Val Leu Ala Ser Arg Ala  
 1 5 10 15

Tyr Ala Ala Pro Ala Pro Val Gln Ala Leu Gln Gln Ala Gly Ile Val  
 20 25 30

Gly Gly Gln Glu Ala Pro Arg Ser Lys Trp Pro Trp Gln Val Ser Leu  
 35 40 45

Arg Val Arg Asp Arg Tyr Trp Met His Phe Cys Gly Gly Ser Leu Ile  
 50 55 60

His Pro Gln Trp Val Leu Thr Ala Ala His Cys Leu Gly Pro Asp Val

65		70		75		80									
Lys	Asp	Leu	Ala	Thr	Leu	Arg	Val	Gln	Leu	Arg	Glu	Gln	His	Leu	Tyr
				85					90					95	
Tyr	Gln	Asp	Gln	Leu	Leu	Pro	Val	Ser	Arg	Ile	Ile	Val	His	Pro	Gln
			100					105					110		
Phe	Tyr	Ile	Ile	Gln	Thr	Gly	Ala	Asp	Ile	Ala	Leu	Leu	Glu	Leu	Glu
		115					120					125			
Glu	Pro	Val	Asn	Ile	Ser	Ser	Arg	Val	His	Thr	Val	Met	Leu	Pro	Pro
	130					135					140				
Ala	Ser	Glu	Thr	Phe	Pro	Pro	Gly	Met	Pro	Cys	Trp	Val	Thr	Gly	Trp
145					150					155					160
Gly	Asp	Val	Asp	Asn	Asp	Glu	Pro	Leu	Pro	Pro	Pro	Phe	Pro	Leu	Lys
				165					170					175	
Gln	Val	Lys	Val	Pro	Ile	Met	Glu	Asn	His	Ile	Cys	Asp	Ala	Lys	Tyr
			180					185					190		
His	Leu	Gly	Ala	Tyr	Thr	Gly	Asp	Asp	Val	Arg	Ile	Ile	Arg	Asp	Asp
		195					200					205			
Met	Leu	Cys	Ala	Gly	Asn	Ser	Gln	Arg	Asp	Ser	Cys	Lys	Gly	Asp	Ser
	210					215					220				
Gly	Gly	Pro	Leu	Val	Cys	Lys	Val	Asn	Gly	Thr	Trp	Leu	Gln	Ala	Gly
225					230					235					240
Val	Val	Ser	Trp	Asp	Glu	Gly	Cys	Ala	Gln	Pro	Asn	Arg	Pro	Gly	Ile
				245					250					255	
Tyr	Thr	Arg	Val	Thr	Tyr	Tyr	Leu	Asp	Trp	Ile	His	His	Tyr	Val	Pro
			260					265					270		
Lys	Lys	Pro													
		275													